

**DEQ Comments - "Final Project Area Identification Report and Data
Gaps QAPP
'GASCO' Sediments Cleanup Action"
Dated July 2010**

(Transmitted via e-mail August 13, 2010)

**Comments to NW Natural's "Response to EPA Comments on Draft Project Area
Identification Report and Data Gaps QAPP, 'Gasco' Sediments Cleanup Action
(dated March 2010)"**

Final AIR

NW Natural Response to EPA Comment #21. Comment #21 indicates that analytical results for sediment samples "equally split between two horizons" should be associated with the shallower horizon. NW Natural and Siltronic indicate their recommended approach of applying potential screening level exceedances to the deeper interval is more conservative as depth of impacts is assumed to occur deeper in the sediment column.

NW Natural's approach is more conservative as long as it applies potential screening level exceedances to deeper intervals in the sediment column and above. NW Natural should clarify this is the case.

NW Natural Response to EPA Comment #23. Comment #23 points out the roto-sonic drilling method can result in significant sample disturbance and the integrity of samples is not equivalent to sediment "cores" obtained using push probe equipment or sediment coring devices. The comment further indicates the presence of substantial product at the GS-01 through GS-12 locations should be identified based on observations of free-phase liquids in sample intervals (e.g., drops, droplets). NW Natural and Siltronic indicate the definition of substantial presence of product in Section 3.6.2.1 of the SOW is independent of drilling technique, and makes many assertions which attempt to support this position.

Based on EPA and DEQ review of the response, none of the assertions NW Natural and Siltronic provide respond directly to the key point of Comment #23; the roto-sonic drilling method results in sample disturbance which influences observations with respect to the presence of substantial product. As such, EPA and DEQ reject the NW Natural and Siltronic response and do not accept the assertions provided as justification for ignoring evidence of free-phase liquids in sample intervals because:

- Vibrations associated with the roto-sonic drilling method mobilize free-phase DNAPL from sediment (i.e., liquid mobile DNAPL is indicated); and
- The thickness of intervals from which the DNAPL was mobilized cannot be determined.

Based on this information EPA and DEQ consider the presence of free phase liquid in a sample interval to be evidence that substantial product Criterion #2 has been met, and there is the potential for Criterion #1 to have been met.

EPA requires NW Natural and Siltronic to use the presence of free-phase liquids, including but not limited to “drops” and/or “droplets,” as evidence of the presence of substantial product in sampled intervals regardless of drilling method.

NW Natural Response to EPA Comment #24. For clarification, screening of riverbank soils should be conducted to the base of the fill unit. The fill unit is variably thick and, depending on location along the shoreline, seasonally unsaturated. As such, there is the potential depending on time of year and location, for the full thickness of the fill to represent sources of contamination to the river through all of the mechanisms identified by NW Natural and Siltronic (i.e., riverbank erosion [by surface water and shallow groundwater seepage], stormwater infiltration, and shallow groundwater discharge). Based on this information the minimum depth of drilling and sampling along the top of the riverbank should be to the base of the fill, and this data should be screened against criteria relevant to each of the contaminant transport pathways.

NW Natural Response to EPA Comment #28. Comment #28 indicates portions of the riverbank extending riverward from the top of the bank consist of MGP waste (e.g., mixtures of tar and soil, spent oxide material, lampback), and occurrence of MGP waste is evidence of highly contaminated portions of the riverbank. NW Natural asserts, “The only EPA-approved visual line of evidence identified in the SOW is related to observations of substantial presence of product.” Furthermore, NW Natural and Siltronic indicate they will only “log borings using multiple techniques to identify any existence of product”, and “do not agree to apply any definitions beyond that of substantial product based on such observations.”

EPA and DEQ reject NW Natural’s and Siltronic’s response. NW Natural, Siltronic, EPA and DEQ agree the term “substantial product” has no meaning for uplands soils. However, NW Natural and Siltronic are limiting the application of uplands information and data to the riverbank by asserting the only “defined” term applicable to the in-water project as a whole is “substantial product.” In other words, although the term has no meaning for uplands soils, the term is used to limit interpretations of the nature and extent of contaminated material along the riverbank. There are substantial data available showing high levels of contamination are associated with MGP waste. Based on this information, EPA requires the presence of MGP waste in the riverbank to be recognized as an LOE for material removal.

NW Natural Response to EPA Comment on Figure 3-1. EPA’s comments to Figure 3-1 indicated review of logs for nearshore borings GS-01 through GS-12 found evidence of the presence of substantial product at GS-01 (“Black staining” from 0 to 2.0 feet bgs), GS-05 (“Free product droplets” from 4.0 to 13 feet bgs), GS-8 (“Fine product droplets” from 6.0 to 7.0 feet), and GS-09 (“Oil droplets” from 0 to 12.5 feet).

Consistent with EPA’s reply to “NW Natural Response to EPA Comment #23,” EPA considers substantial product to have been identified at each of the referenced borings over the depth intervals indicated. EPA acknowledges NW Natural revised the Final AIR to include an

additional core at GS-01 to further evaluate visual observations made previously. NW Natural should add core locations at GS-05, GS-08, and GS-09 for the same purpose.

Attachment A (Draft Field Sampling Plan) Draft Data Gaps Quality Assurance Project Plan

NW Natural Response to EPA Comment #20. Comment #20 requests TPH fraction analysis of sediment samples using EPH and VPH methods in addition to the NWTPH-Dx method recommended. . The NW Natural and Siltronic response indicates that because, “No sediment data has been collected as part of the Portland Harbor Site RI process for EPH and VPH and there are no currently identified PRGs for these chemicals for the Portland Harbor Site. Therefore, NW Natural and Siltronic do not agree with the collection of this information for sediments.”

EPA and DEQ reject this response. There are many valid technical reasons for collecting this data including the following:

- The composition and character of MGP waste does not correspond to any generic petroleum fuel products.
- Given the nature of the MGP waste analyzing TPH fractions is necessary for characterizing the nature and extent of contamination in the uplands and in-water.
- The State of Oregon has established protocols for characterizing material such as MGP waste using total petroleum hydrocarbon (TPH) fraction analyses.
- Toxicity reference values for TPH fractions have been developed by EPA for use in the Portland Harbor baseline ecological risk assessment.
- Areas of unacceptable risk and areas of “substantial threat” material associated with MGP impacts could be underestimated using typical fuel hydrocarbon analytical methods (e.g., NWTPH-Gx, NWTPH-Dx) and constituent analyses.
- The TPH fractions associated with the Gasco MGP hydrocarbon mixtures represent site-specific COCs.

Furthermore, EPA’s and DEQ’s understandings of the June 3rd meeting/call do not include agreeing to limit: 1) the scope of collecting samples for TPH fraction analyses to uplands and riverbank soils; and/or 2) use of this data to evaluations of upland human health exposures.

NW Natural and Siltronic should comply with EPA Comment #20 to the Draft AIR and collect and analyze river sediments for TPH fraction analysis throughout the study area consistent with comments provided previously and here.

ALTERNATIVE LANGUAGE FOR SENTENCE ABOVE NW Natural and Siltronic should collect sediment samples throughout the study area, and archive the samples for future TPH fraction analyses consistent with comments provided previously and here.

Comments to NW Natural’s “Final Project Area Identification Report and Data Gaps QAPP, ‘Gasco’ Sediments Cleanup Action (dated July 2010)”

Section 3, Page 13, 3rd paragraph. The 2nd sentence of the 3rd paragraph states, “Because the results of the revised data screening will not affect delineation of the proposed Initial Project

Area (IPA) and data gaps sampling, EPA also approved submittal of this Final AIR and the attached Data Gaps QAPP (Appendix A) without revision to the existing data screening.” First EPA considers it premature for NW Natural to indicate the revised data screening will not affect delineation of the IPA. In addition, this statement does not appear to be accurate. Although the IPA line remains the same, the criteria used in to initially identify the area are now removed. NW Natural appears to have not only deferred in-water screening levels to a later time, but major LOE have been removed from the IPA identification process, including the results of the empirical bioassay toxicity tests, and evaluation of transition zone water (TZW) and surface water data.

Section 3, Page 13, 4th paragraph. The 1st sentence of the 4th paragraph states, “In addition, because EPA is requiring submittal of this revised Final AIR (“Table 1: Schedule of Project Deliverables from the SOW does not require this submittal), NW Natural has revised subsection 3.1.3.2 and Figure 5 to include delineation of the IPA using the March 24, 2010, Focused PRG List (attached as Appendix B to this Final AIR) transmitted in EPA’s April 21, 2010, letter to the LWG.” If this is the case then to be consistent with EPA April 21 letter, bioassay test results, TZW, and surface water exceedences need to be added to Figure 5, as these LOE were removed from the original figure (Figure 3-2) in the Draft AIR.

Section 3.1.1.2.4, page 18. The text of this section states, “Sediment quality guidelines (SQGs) from Table 17 of this AIR were used for data screening. The Benthic Toxicity Reanalysis Technical Memorandum (Windward 2009a) describes several procedures used to calculate these criteria, entitled: ‘EPA 2009 method,’ ‘Calcasieu BERA method,’ and ‘Draft BERA method.’ Table 17 lists criteria calculated using each method. The following conservative approach was used to select the Benthic Toxicity Reanalysis Technical Memorandum criteria used for data screening:

- Values for the low threshold are the ‘low threshold’ value obtained using the ‘EPA 2009 method,’ as presented in Table 17.
- Values for the high threshold are the ‘high threshold’ value obtained using the BERA Procedure, except for zinc, where no number calculated through the ‘Draft BERA method’ or ‘EPA 2009 method’ is available and the ‘Calcasieu BERA method’ - calculated number is used, as presented in Table 17.”

Table 17 is mentioned several times above, but is listed in the document as “LWG FS Design Characterization SBLT Analytical Results,” and not calculated benthic screening values. Benthic criteria should be taken from the EPA 2009 method, which to date have not been fully reported as the November 13, 2009 benthic toxicity re-analysis memo did not include the EPA 2009 method in its entirety. For example, the *Hyalella* biomass endpoint was not included. In response to identification of this problem, a four page memo entitled “Site Specific SQGs based on Individual Endpoints” was submitted April 2, 2010, but was determined to be incomplete because of the chemical list (e.g., only an LPAH number given). However, comparing the EPA 2009 “high threshold” value from this memo for LPAHs to the value presented in the *Benthic Re-analysis memo* shows order of magnitude difference in SQGs. The high SQG based on all endpoints and the EPA 2009 memo was 1,600 ug/kg compared to the value of 650,000 ug/kg NW Natural selected from the *Benthic Re-analysis memo*.

This project should be using the EPA 2009 criteria for all chemicals, and should move forward only with sediment criteria that represent the current state of the in-water project. It is also important to note that appropriate EPA 2009 sediment criteria for HPAHs and Total PAHs (based on the floating point model) have not been submitted by the LWG.

Section 3.1.1.3, page 18. The fifth sentence of the section indicates, “For the purpose of defining the depth of screening level exceedances for this chemical in the IPA, a screening value of three times the PRG for PCB-126 is used. These subsurface sediment screening levels are summarized in Table 10.” NW Natural response does not address EPA’s comment which requested justification of the use of 3x the PRG.

Section 3.1.2, page 22. The text of the section states, “The results for benthic toxicity tests were compared to screening levels derived from Table 2-3 of the Benthic Toxicity Reanalysis Technical Memorandum (Windward 2009a). The Benthic Toxicity Reanalysis Technical Memorandum describes several procedures used to calculate these benthic toxicity thresholds, entitled: ‘EPA 2009 method,’ ‘Calcasieu BERA method,’ and ‘Draft BERA method.’ Table 2-3 of the benthic Toxicity Reanalysis Technical Memorandum lists the thresholds calculated using each method. The following approach was used to select the Benthic Toxicity Reanalysis Technical Memorandum thresholds used for benthic toxicity data screening:

- Values for the REV and low thresholds are the “REV” and “low threshold” value obtained using the EPA 2009 method.
- *Values for the high threshold is the “high threshold” value obtained using the Draft BERA method (italics added for emphasis).“*

The EPA 2009 low thresholds referenced here exclude the *Hyalella* biomass endpoint. Table 1 presents the sediment SQGs based on the high threshold from the DRAFT BERA method. Comments were provided to NW Natural previously indicating these were not appropriate and should not be used. As indicated above, this project should be using the EPA 2009 criteria for all chemicals. The project should move forward only with sediment criteria that represent the current state of the in-water project.

Section 3.1.3.2, page 25. NW Natural removed text from this section regarding how EPA identified preliminary AOPCs for the in-water FS (Rules 1-4), and inserted strong language indicating NW Natural will be relying on the focused PRG list dated March 24, 2010 (see Appendix B) to conduct the screening analysis for this AIR. However, the focused PRG list was intended to be used in the context of EPA’s April 21, 2010 letter, which identified LOE and approaches in addition to focused PRGs that needed to be included in analyses as follows:

EPA’s primary goals for evaluation of benthic risk in the FS include the following:

- Define areas that pose unacceptable risk to the benthic community
- Define the areas and volume of contamination that may pose risk to the benthic community
- Evaluate remedial action alternatives and effectiveness (did it meet the RAO)

Guidelines:

- All benthic SQGs in the March 24, 2010 list will be included in the analysis. If specific SQGs are found to be inconsistent with other LOEs listed below, EPA will review the analysis and determine whether these should be included in the draft FS.

- *Sediment toxicity bioassays will form the primary LOE for this analysis* (italics added for emphasis). The sediment toxicity LOE will include level 2 (moderate) and level 3 (severe) effects for all four endpoints (chironomus biomass and mortality and Hyaella biomass and mortality).
- The analysis will consider the number and degree of exceedance of SQGs.
- *The analysis will consider other LOE such as TZW compared to ambient water quality criteria* (italics added for emphasis) for the protection of aquatic life and benthic tissue TRVs.
- The analysis will consider the presence/absence of nearby sources and examine benthic community structure (e.g., via sediment profile imaging and related information).
- The analysis will consider data quality and data density issues for the SQGs.

Based on the information summarized above, NW Natural has removed from the AIR goals and guidelines identified by EPA for use in preliminary identifications of in-water AOPCs. These goals and guidelines should be used in identifying the IPA for the Gasco sediment project.

Section 3.1.3.2, page 26. The 3rd paragraph has been revised to, “EPA and LWG agree that the benthic risk areas will be mapped using an approach that considers multiple lines of evidence, including bioassay results, benthic SQGs in the March 24, 2010 Focused PRG list (Appendix B), and other lines of evidence. Currently, LWG and EPA do not agree on the methodology to be used in this approach. *The benthic risk areas shown in this AIR only consider the benthic SQGs in the March 24, 2010, Focused PRG list (Appendix B) and therefore does not account for the remaining benthic risk lines of evidence* (italics added for emphasis). It is understood that the risk areas mapped solely based on these PRGs will be reevaluated following agreement on the methodology to be used to identify benthic risk areas. Any such revisions will be incorporated into the project EE/CA.”

These statements clearly indicate only focused PRGs will be used in the AIR, and other LOE such as the results of bioassay testing, and evaluations of TZW and/or surface water will be excluded. This was not the agreement reached during the June 3, 2010 conference call regarding screening criteria for the AIR. It appears that instead of responding to comments and using the current correct threshold interpretations for bioassay testing, NW Natural has dropped this LOE altogether for the AIR, as well as TZW and surface water LOE.

Section 4.5, Page 47. The seventh paragraph now states, “LWG and EPA have agreed to identify benthic risk using a multiple lines of evidence approach that emphasizes bioassay results as the primary and most important line of evidence (italics added for emphasis). Exceedances of the March 24, 2010, Focused PRGs (Appendix B) for benthic risk (benthic SQGs) were generally used to identify the IPA for this AIR. NW Natural and Siltronic are currently using this IPA, which generally encompasses larger, broader SQG map areas in the navigation channel; however, *the Project Area will be revised accordingly when the additional lines of evidence are selected and existing data in affected areas are evaluated against those lines* (italics added for emphasis). Additional data gap sampling may be warranted if it is determined that collection of additional data for selected lines of evidence will assist remedial alternative selection in the EE/CA or design process. Examples of potential future data collection for this purpose are additional bioassays and surface chemistry data in certain areas to verify the presence or absence of benthic risk.”

This text is confusing, but it must be noted that although LWG and EPA recognize, "...bioassay results as the primary and most important line of evidence" for identifying benthic risk, and threshold values are available for properly interpreting the bioassay data currently available, the benthic risk LOE has been removed from the Final AIR. As discussed above, analysis and interpretation of bioassay data should not be deferred. Furthermore, when considered with text referenced above from other sections, it can be reasonably concluded, moving forward NW Natural intends the IPA for this AIR to be based on the presence of substantial product and exceedances of the March 4, 2010 focused PRGs. Recognized LOE should be incorporated into the AIR (e.g., bioassays, TZW data, surface water) for consistency with the overall in-water process and to reduce the potential for significant differences in project area boundaries to be identified late in the planning process.